T.I.-bings

from New-JUG/North

APRIL 1988 Volume 6 Number 4

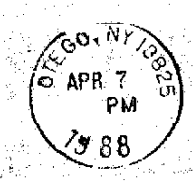
Officers:

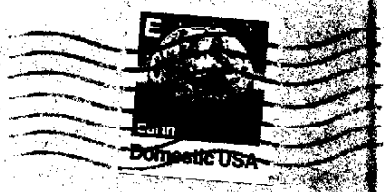
President...Bill Staedeli..384-4660
Veep.....Walter Macieski..667-6903
Editor...Henry Hein...607-988-7789
Treasurer...Frank Filice 384-8797
Secretary...Jim Ott..... 790-6052
Librarian.Andy Westner..967-9154

NEXT MEETING: APRIL 19th, Dumont H.S. Faculty Lounge, 7-9:30 P.M.

Motto: We are a family enjoying the unspeakable peace and freedom of being orphans. (Paraphrased from George Bernard Shaw)

April showers bring may flowers





New Jersey UG/North
P.O. Box 84
Dumont, NJ 07628

Dallas TI Computer UG*
PO Box 29863
Dallas, TX 75229

User Groups: Please Reciprocate!

T.I.-dings From New/JUG/North
April 1988 Vol 6, #4

FUTURE MEETINGS:

April 19 and May 24 BOTH at Dumont H.S. Faculty Lounge

June 21, July 19, and August 16, ALL at the Bergenfield Public Library.

ALL meetings begin at 7:00 PM.

M I N U T E S:
by Jim Ott

The March meeting came to order at 7:30 PM. Only 10 members showed up. Discussion was led by Bill Staedeli which covered the need for more coordination among members in getting equipment to meetings for demonstrations. No demos were possible due to the lack of a P-box.

The members informally discussed the *ARCHIVER* and *TI-Writer* programs. One important tip for using the TIW was to always format margins properly with the .FO commands. The *ARCHIVER* compresses and combines programs and files into one large file for efficient uploading to a BBS, a distant user, or network through a Modem.

Our Treasurer, Frank Filice, reported a balance of $392.66. (Watch those postage rates deplete our treasury fast, Ed.)

We will need a volunteer to take minutes at the next meeting since I will be away on vacation.

Respectfully submitted, Jim.

N E W S B Y T E S:
by Henry Hein
RD #1 Box 343 A
Otego, NY 13825

Item: This column will be brief this month. There has been too much to do at this homestead and exchange newsletter readings are backed up too high. Yes, it's spring, and lots of chores are building up.

Item: Last month's ML was done with a new heavy stock paper. When trying to mail them out at the PO its weight was over an ounce, but ever so slightly! Rather than pay the extra postage, at club expense, I trimmed 1/8" with a paper cutter. My paper stock ran out and I got a good buy on this new stock, except that six sheets, rather than seven, make an ounce plus. I may have to compress the copies I make of other ML material and squeeze them in to fill five sheets, double sided, with info. You may need a magnifyer to read some material, regretfully. But there is so much good stuff!

Item: The last few versions of DM-1000 found on the recent FUNLWEB releases have a hidden capability. You can set your printer outputs to produce micro-sized disk catalog printouts when should you want them by setting your Epson/Gemini DM compatible printer codes. To access this, opt for DM-1000 in the menu, hit F3 (Function 3), and type in your printer commands, like I5 27 49 27 83 01. DM-1000 will save it at your command. It is useful for those disks with many small files such as the Instances and Fonts for TI Artist and other graphics programs. For other printers you MUST study your printer's manual for its own codes. Escape codes are usually the same (27) but the others are ASCII (letters or numbers) your printer responds to.) For this item we owe thanks to Phil van Nordstrand of the Johnson Space Center UG, League City, TX.

Item: *PICASO* Publisher has arrived! Looks promising and simpler than ARTIST and other graphics programs. It supposedly will print two-column texts with your screen drawing, an ARTIST pic or instance. It has ten fonts of its own. It is well worth the investment of $17.50 US (S and H included). Canadian and Australian $22.50. Send for yours to ARTO HEINO, 35/8 GUERNSEY AVE., MINTO, 2566, N.S.W., AUSTRALIA. It requires an EPSON compatible DM printer.

Item: The new *FUNLWEB* V.4 is not just bells and whistles! It has a 40-column ruler to aid in centering titles, bylines, etc. The TIW's .CE command interferes with special commands for special effects in titles and this ruler is an aid to avoid the need for the .CE command when a special effect is desired. E.g. if you want enlarged, italic, etc., TIW's .CE command ignores the standard and .TL commands and prints your title, etc., in plaintext. So much for that! This on-screen ruler would also make it easier to prepare 40-column screen and printed text. You can set tabs, too, and make the tab marks visible throughout your texturiting. There are a few other significant changes I hope to inform you of in a later edition.

Item: Thanks to Jim Ott, Bill Staedeli, and Frank Filice for their contributions to this month's ML.

Gleanings from Micropendium
by Frank Filice
Vol.5 No.1, February 1988

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HIGH RES GRAPHICS AND THE 99/4A, PART II

by Anne Dhein

Section One: The Preliminaries

Part one of this article defines a drawing package as a program or group of programs that will allow the user to create graphics by turning on (or off) the smallest addressable unit of the screen - a single pixel. All of the currently available drawing programs for the 99/4A allow individual pixels to be placed anywhere on the screen and removed as desired, to create very detailed pictures. Drawings can be saved to disk (or to some other type) and later be reloaded for editing or printing.

As you know, all the 99/4A paint packages do much more than just this minimum. But the features present in a particular package, and how they are implemented vary widely. Sections of part two provide a chart to allow a feature-for-feature comparison of the main drawing packages for the 99/4A.

The chart lists the name of each drawing package (in alphabetical order) across the top. The drawing packages are on the chart roughly in reverse order of how they were introduced on the market - that is, the later ones are listed first. You can quickly tell whether a program has a particular function or characteristic by locating that function in the first column and then checking across the line to the column in which the program is listed. Over the next few issues, detailed information will be given about each of these functions.

If you are planning to purchase graphics software the first thing to ask yourself is, "What is I want to do with the program?" Looking at the chart, Program Point refers to the primary purpose of a package. Those packages for paint programs are for entertainment "Ent" or as a production tool for producing letterheads, newsletters, flyers, etc. "Pr" or as a programming utility "Ut". Some of the programs do all three; others concentrate on just one aspect.

Morton Graphics, for example, is strictly a programming utility, and Paint 'N Print is pure entertainment. TI Artist is the best general purpose program by far, but nothing can beat Draper for enhancing an artist's creativity. Joy Paint also excels in this area, and although lacking in color has production capabilities not found in Graphs. Draw 'N Plot can be used quite comfortably as a simple dynamic board, but its real merit lies in its ability to interface with your own programs.

System Requirements

Before you purchase any program, check to make sure that you have all the hardware necessary to run that particular software. Two of the programs - Paint 'N Print and Super Sketch - can be used with only a console. Morton Graphics Package can also be run on just the console, using Extended Basic. The others require a disk system and 32K memory expansion.

Paint 'N Print, Super Sketch and three of the disk programs also might have a additional disk, used separately, but which adds substantially to the program's capabilities. These disks are listed in their order on this chart, under the name Program. The questions they answer are answered Yes. Since Paint 'N Print and Super Sketch are sold with their supplemental disks, they also need no separate system. A cassette version of Extended Graphics is available for Paint 'N Print, but it still requires a 32K memory expansion unit. Paint 'N Print, by the way, won't work properly in my system with the widget. (They Paint 'N Print directly into the console and I write him.

The programs may not work with the Myarc media ZipCode peripherals. Joy Paint, TI Artist and Graphs, Plus with most non software do work with any of the Myarc controllers. The version of Draw 'N Plot I have spoken at work with a Myarc disk controller, but where Myarc Corline's TI Artist works beautifully with the Myarc/DSR disk and disk driver disk you. Since this software comparison was written exclusively on Myarc disk controllers, updates to check with other Myarc peripheral compatibility is not available on the chart. If you appear to have any of the other peripherals mentioned in this article be given when buying software.

Printer compatibility is covered further down in the chart but should be mentioned here as something to watch for when buying software. It is very disappointing to get a good drawing package home, only to find the screen dump won't work with your printer!

Loading Requirements - With the exception of the Morton Graphics Package which is programmed in the Program/Extended Basic, the software listed here is written in assembly language; therefore a cartridge which can access assembly language is necessary. The three "loader" cartridges are Extended Basic, Editor/Assembler or Mini Memory. TI Writer's Option 3 can also be used instead of Editor/Assembler's Option 5. Since software can use any loader; other packages require a particular cartridge which is listed on the chart.

Ease of Use and Method of Operation

Just as people are different, so, too, does each program seem to have its own "personality", or flavor. This rating should be looked upon as subjective and a given here only to provide one person's idea of how easy the program is for an average user to learn and to use comfortably on a day-to-day basis. The Morton Graphics package rates the lowest because it is slow and takes some patience. It is meant for Basic programmers.

Super Sketch is on the other end of the scale. It is so easy to use that a child who doesn't read well could comfortably use it with a minimum of instruction and supervision. Joy Paint, even though it does a lot more, is also very easy to use. Main drawing functions such as draw, erase, fill, using circles and lines, lettering, paintbrush, etc., are all easily selectable from the drawing board by a corresponding picture (known as a "icon"). More complex features and file management are equivalently selectable by menu.

The other programs fall somewhere in the middle. Draw 'N Plot and Master Painter require the memorization of a number of function keys to use them properly, so also you had better have a list handy. The manuals for these two are also hard to read. Mister requires some memorization combined with the use of icons, but Mister's manual is much better.

Draw 'N Plot uses a single mode and a few function keys. It doesn't have as many features as the others, but what it has is easy enough to use. The instructions are adequate, especially if you are a programmer.

Graphs 'N Print is pretty good as a "toy" program but there are a number of bugs that need to be ironed out which makes it harder to get started.

TI Artist and Draper are not perfect, but they are commendable for use as a regular basis, and very easy to begin using. TI Artist makes extensive use of icons, so others also prefer them but also allows the faster method of pressing function keys for the quicker commands for those who want to memorize them. TI Artist does require switching between two disk programs and several auxiliary ones which can get tiresome even though it is all done within the main program. Draper, like Mister, uses some function keys but provides an identifying strip on the top of the keyboard which makes them quite easy to follow. Draper also uses menu selection for the less used features. If all the paint programs Draper has the best manual, which can be used as a tutor as well as a reference.

A final word on two more items which are not covered on our check list: availability and price. Most of the programs listed on the chart are readily available and can be purchased at any number of places, including Radio Shack. Prices given are those charged at Radio Shack, and are very from place to place: Joystick, $39.95; Joy Paint's Pal, $9.95; Bitmac, $9.95; TI Artist, $49.95; Artist Extras, $6.95; Graphs, $9.95; Draw 'N Plot, $9.95; Morton Graphics Package, $7.95.

Paint 'N Print, produced by Navarone Industries, is also readily available. I occasionally see Master Painter 99 by Smartsoft still advertised, and I believe you can still get Draw-A-Bit and Print-A-Bit from Data Force in Illinois. Since these addresses are readily obtainable from your user's group officers (or from me), I won't repeat them here.

Super Sketch, also, is no longer made. It is included in the chart because there are still a lot of them in use, and you just never know what one might pop up for sale. Super Sketch is unique in that it has been the only pad and pencil type software released for the 99/4A.

Section Two: Getting Down to Details

Let's talk about drawing tools. On most packages the cursor is your "pencil" as well as your "eraser". The pencil can be moved around either by using the keyboard's arrow keys or by using a remote controlled "joystick". Some software requires joystick control. Then the fire button is usually used to turn the drawing tool on or off. Trying to do any curved lines with just the keyboard is practically impossible - you need the better control that a joystick has. On the other hand, it's harder to draw straight lines with a joystick than keyboard does a better job there. Luckily, drawing programs can create lines, boxes or circles automatically.

Anywhere a joystick is required, a trackball can be used instead. The joystick will offer 360 degree movement for much fine control of the pencil that you can usually write your name in cursive. If won't promise does it will look! However, it is almost impossible to draw a straight line with a trackball. This is where the automatic line function in drawing programs becomes invaluable. If you are using a joystick or trackball in where the Alpha Lock is in the UP position.

Cursor Speed Control - In many of the programs the speed of the cursor can be controlled. This is usually increased if you are drawing large areas (spaces), you can go much faster, then you want to work on painstaking detail then use a slower cursor for more accuracy.

Brush Styles - Instead of drawing a line (like the single-pixel pencil), a brush applies "paint" for color or texture lines. Draw & Bit lets you paint in solid or narrow swatches of color. TI Artist includes eight brushes and brushes that make parallel lines plus you could get free painting with a fork. Paint 'N Print, which has 32 brush styles includes circles, squares, and even triangles in a number of sizes.

Automatic Draw Functions - As mentioned earlier, all paint programs listed here will draw lines for you automatically. Select the beginning and end of your line, press a button, and presto - you have a perfectly straight line right where you wanted it. Some programs will also draw circles, ovals, rectangles and rays. A ray is like a line except that you can keep moving the cursor (pencil) around the drawing board and wherever you choose to press the button, you can have a perfect line between the current cursor position and your original starting point.

Some programs will also draw ellipses and rectangles. For chart purposes, an ellipse includes circles and ovals, and rectangles include squares. Draw A Bit and the Graphics Package draw 90 degree arcs - four

area make a circle. The various programs handle this function in different manners, but the principal is the same: select the center position and the size, and the figure is drawn symmetrically.

Filling, Shading, and Adding Depth - In all but two of the programs, closed shapes can be "filled", or "painted", with a specified color or pattern. The Paint 'N Print cartridge limits the filling to a rectangle only. But with the companion disk, any closed shape may be filled with any texture or solid color.

A normal fill requires the cursor to be moved around the shape as it is being filled, in order to get every little part of it. A semi-automatic fill does most of the shape in one pass, the occasional spots missed dealt with or done manually. A fully automatic fill reacts to see that every little corner has been filled - even in curved shapes. Sometimes this is called a "smart" fill.

Many programs provide patterns for shading and depth. Super Sketch has one texture pattern. TI Artist has 16 and Joy Paint has 24 from which to choose. Joy Paint also has an airbrush which works like a can of spray paint. It gives a misty, sprayed effect in whatever pattern you are using. Because you can control the amount of "paint that goes on the drawing it makes an excellent tool for adding shadows and depth. Almost the same effect can be achieved with Paint 'N Print by using some of the larger brush sizes and stippling in the texture mode. Bitmc has a feature called "Lido" which also be used for putting a shadow effect.

Joy Paint and Paint 'N Print both have routines in their companion disks for creating new texture patterns. Once you have saved these patterns on disk, they can be used over and over.

Reflections - The chief application of this function is to draw symtrical figures rapidly and easily. The screen is divided into sections and whatever is drawn in one section will be reflected in all the others. In TI Artist this is called the MIRROR function, and the screen is divided into four parts. Other functions such as circle, frame, line, and spray can be used while the mirror functio is in effect. Paint 'N Print calls this function KALEIDSCOPE and gives you a choice of 2 to 8 reflections. Functions such as square, circle or fill may be used but result in only one image.

Picture Manipulation

Move, Copy, Flip, Rotate, Invert, Magnify and Reduce - When you love your picture underway, and more or an idea of what you want, you will appreciate features that let you alter he look of the drawing. Some programs let you copy one part of a picture to another part, move sections of picture around the screen, rotate, invert, or flip them; magify or reduce parts. Invert seems to turn all the "on" pixels off, and all the "off" pixels on - thus swapping black for white and vice versa for black. Flipping a picture gives you a mirror image, either left to right (horizontal) or up side down (vertical) depending on which way you flip.

The only programs that have functions to enlarge or reduce drawings are Bitmc and Joy Paint, which can each double or halve the size of the selected image. For reducing a Joy Paint image, the companion disk, Joy Paint's Pal must be loaded. It can also be used for reducing parts of TI Artist or Graphx pictures. These pictures can then be restored in the original format or switched to Joy Paint's file structure.

TI Artist drawings can also have parts saved to disk in an enlarged format by moving the screen when the zoom mode is in effect. This will give you a new picture that is four times the size of the original. For both reducing and enlarging, Joy Paint does the smoothest job.

Text Handling and Special Fonts - The more recent programs all have provisions for text to be used right along with the graphics. The worst of these are Joy Paint and Bitmc, each with what almost amounts to a mini word processor built right in to the drawing board. With TI Artist, variable sized letters can be easily typed on the screen from the keyboard in all different heights and widths, but some of the letters are rather blocky looking. Four of the programs additionally contain special provisions for fancy lettering to be added to the drawings. Paint 'N Print contains a font editor which makes it easy to change the resident lettering. TI Artist provides an alpha insert font function in the procedure section of the program. Fle-thatpaint fonts that are stored on the disk may be loaded into the program for an endless variety of lettering. Graphx stores fonts on the clipboard, and again there is an endless variety to choose from among the support disks. The letters to be used are lost out in the clipboard and then transported to the picture where you want them. Joy Paint 99 works much the same way: alphabets are stored as a regular picture file, and the Cut and Paste option is used to plot them in your drawing.

Zoom Mode - Four of the programs have the ability to magnify a small part of the picture you are working on so that it temporarily fills the screen. This allows you to work on small details with a high degree of accuracy. Joy Paint calls this mode "Detail", Paint 'N Print calls it "magnify". TI Artist and Graphx call it "zoom". Joy Paint also displays a normal sized version of the graphics in the upper right corner of the screen so that you can see what your changes are going to look like as you make them. TI Artist lets you use other drawing functions while in the zoom mode - even to making a second hard copy or saving to disk. While in the zoom mode Graphx provides a marker to show where color boundaries begin and end. If you happen to be using the grey checker board pattern used for marking color boundaries in Graphx, it will still be present in your zoomed in copy.

Paint 'N Print has a high degree of magnification. Each pixel is shown as a square eight times its original size. Each square is outlined in a fine black line and each block of 64 are outlined in a bold black line. The bold line marks the color boundary for each character block.

When the zoom function is chosen Joy Paint, TI Artist and Graphx all let the user choose which part of the screen will be zoomed by placing a box with which to enclose the desired area. In the Paint 'N Print environment, the place where th cursor is sitting when zoom is chosen becomes the center point of the screen, with he screen then acting as your "window" in a small but highly magnified part of the drawing. All of the drawing is accessible by scrolling it by this point, just like cursor anywhere.

Section Three: Picture Storage, Color, and Unique Features

Unstructured Memory - Most drawing packages have provisions for putting entire part of a picture and later adding it to another picture. The "unstructured" memory can be handled in two ways by saving a permanent version of the clipped picture onto a disk which you can reload as needed or by storing the picture-part in intermediate memory where you can recall it when you need it, even though you have loaded a new picture files in and out of the program since the picture part was stored.

Any time type of picture-part is saved to a disk it shouldn't be confused with a regular picture file. When a picture file is loaded into the program, whatever you had on the screen before is erased and gone, and the new picture takes its place. Picture-parts, however, are loaded in addition to whatever else is already there. Image mail pictures have become very popular with the drawing community as that they have their own special here -clipart.

Each program is unique in the handling of this additional storage. Joy Paint uses internal storage for a Cut and Paste method much like the paint programs for other popular computers do. All screens are saved in the same area. When something is copied from another picture, save the current picture first, then load in the picture to be borrowed from. "Cut" out the piece you wish to use. Reload the original picture and "Paste" the new part any where on the drawing.

Bitmc uses the "Store" function for internal temporary storage. Current screen graphics can be overlaid with graphics stored on a disk, using what is called "Boolean Input". This allows special graphics effects which are unique to Bitmc.

TI Artist also has unique storage methods. Besides the normal full screen picture files, parts of pictures can be saved as "instances" or "slides". Slides are a collection of up to 24 picture designs that can be independently designed, rotated, and moved around on your drawing. Instances are images that can be added to your drawings or combined together in whatever manner you wish. They can become a permanent, editable part of your drawing. The nice thing about instances is that they are save in a DISPLAY VARIABLE 80 format which can easily be transported to Extended Basic programs or TI Writer files as well as being used for clipart.

Graphx has a very powerful "Clipboard feature. With it you can create and store clipart permanently on a disk and it is also possible to copy a portion of one picture into another, much like Cut and Paste. A portion of a picture, or even several pictures, can be stored. Then decided on later on to which ones to keep and which ones to erase.

Use of Color

In the high resolution mode each graphic position available to be used in our electronic drawing board is called a pixel. You may remember being told that the screen is like a grid with 256 pixels across and 192 pixel rows; and that each individual pixel on the screen can be turned off or on separately while you are drawing - all 49,152 of them! Right? Wrong, if you are using color!

Color resolution for the 99/4A is not the same as drawing resolution. We still have the same 192 rows of pixels, but instead of 256 pixels across, we have only 32 graphic positions across each row. Each row o pixels is grouped in eights, starting from the left of the screen, and each one must be the same two colors - a foreground and a background.

The programs s the color assigned to the brush or pencil line in each 8-pixel group. The background is the color assigned to those same eight pixels when the pencil is not used. Then you first begin using the drawing board, all of the eight-pixel groups have been assigned the same two colors. The color you see before you begin drawing is your background, and, of course, the pencil line is your foreground color. You may also use a third color in the form of a border around the perimeter of the screen. This is the screen color. If you don't see it, that means no screen has been assigned the same color as the background.

Now you can see why color resolution is 64 X 192 instead of the drawing resolution of 256 X 192. Any given group of eight horizontal pixels MUST be the same two colors. The groups on either side can carry entirely different colors, but each group is limited to two colors. Knowing this, and arranging you drawings according to the color boundaries is important when working with color.

Most programs make full use of the 99/4A's 15 brilliant colors, allowing control over th foreground and background colors, and in many programs over the screen color as all. Sometimes the screen color is called the "backdrop".

All programs using color allow the swapping of one color in a drawing for any other. When the exchange takes place, every incidence of that color on the screen is swapped for the new one. Additionally, some programs like TI Artist and Graphx allow selective recoloring of a chosen area.

Some of the programs provide special helps for working with color. TI Artist provides a function that lets a special color cursor move on color boundaries. Draw2 does the same, also providing a "Dry and White Checkerboard" function which is handy for planning drawings which will use a lot of different colors. This makes it much easier to plan the various colors in your pictures so that they don't bump into each other. When you no longer need the grid simply choose the "Remove Grey Boxes" option.

For special color effects, two programs that shine are Graphkit with its Redraw feature described elsewhere, and Paint 'N Print which includes five extra related colors a varying widths of horizontal and vertical shrinks. Draw 'N Plot makes limited use of color. Only two are used at any one time - foreground and background. Some colors can be easily switched so you can see how the various combinations of color look together.

Besides the Graphic Package, which doesn't use color either, Jay Paint is the only color paint program not using color. Here the emphasis is on the manipulating of picture components, and color is used only as a background, with the pencil line always being your choice of either black or white. Painting covers by filling shapes with the any patterns available, or using the air brush to "spray paint" an area with a chosen pattern.

A third use is a method of presenting pictures in a selected order. Bitmac is the only program with this feature built in; Draw 'N Plot and Draw 'N Plot have disk files that you can adapt for your own pictures. TI Artist has an excellent companion disk called Display Master that gives you many options in designing your own slide display. Gemprint Software puts out a slide show program for Draw Plus.

The Undo command lets you "take back the last step" of a drawing. If something was moved or erased that shouldn't have been, no harm done, just "undo" it. Jay Paint is the 99/4A's only program with this feature but it is quite common to paint programs for other computers.

Like Undo, each program has special features not shared by the others. If you are in the market for a new paint program, one of these might be just the feature you were wishing you could find. For instance, Jay Paint has a drawing area that is actually 922 larger than the screen. To see the rest of the drawing board, the screen is used as a window, and can be moved from side to side or up and down. When the screen dump program is used the whole area, not just what is visible on the screen, is printed.

Do you have a second computer that you have wished you could tie to your 99/4A? The Bitmac software will let you do just this. When the coprocessor function is in effect, the other computer (not necessarily a TI) can manipulate data while the 99/4A is processing elaborate graphics from that data.

Bitmac has a Cursor Mover feature which can be turned on or off as desired. It keeps track of the actual pixel location of the cursor. The program also lets you scroll your picture one pixel at a time to the right or left, up or down on the screen. This is handy for getting a drawing onto color boundaries, and also for special effects using the Boolean inputs AND, OR, and XOR.

The TI Artist "Duplicate" file was already mentioned above as being excellent additional storage for clipart, because these files can be edited or modify any pictures you are currently working on. The Instaview file is invaluable for using as a vehicle to transport your artwork to other medium. Many support programs have been built around the ability of these instaviews to be to easily used, including Font Artist (Asgard), Art Convert (Tirax) and Character Maker and Graphic Design III (Thesaurus).

Outline being used for planning color in drawings. Use unless grey but function in Graphic can be used for designing schematics and other precision drawings which require precise spacing.

The Graphic clipboard with lets you experiment with character selection. If you store the appropriate image in the clipboard you can create short, animated sequences which you can display against a background of your favorite Graphic picture.

Like this Bitmac Graphics Package, Draw 'N Plot is primarily a programmer's tool. Unlike the Graphic package number, Draw 'N Plot has a very slow, ball-bastered drawing speed. Also, the routines in Draw 'N Plot are in assembly language which considerably speeds up operations. Draw 'N Plot makes an excellent program to design your own Extended Basic programs (mouse, joystick, graphics, etc.) in a jiffies.

Draw 'N Plot is chiefly a "all-basic programmer's tool" as such, but the programmer will be somewhat embarrassed to learn assembly language as well as Extended Basic to use it with his own programs.

As you work in the Draw 'N Plot environment, your picture is automatically saved for you in intermediate memory. Any time you wish you may clear the screen and with the push of the right keys, restore the picture, file for line. This is a fascinating procedure to watch. Pictures may also be saved in this Draw mode if desired. Also interesting to use is the Crossout-Both option. This is like a line function except that you plot all your dots first; then the lines appear when you are ready for them.

Built right into Paint 'N Print is a font editor that will let you easily change the shape of the resident alphabet. The companion disk additionally allows editing of the texture character for all sorts of special textural effects.

Paint 'N Print is the only drawing package which

allows a screen dump to be in color, providing you have the right printer (the Axiom GP 550).

Super Sketch is the only program that includes a touch tablet. This graphics tablet, although deceptively simple looking, is a precision tool that accepts commands through a control arm which determines screen positions. The control arm moves the pointer (your pen) around the tablet, and the stylus makes track of where this pointer is at all times. In this manner, any picture placed on the tablet can be traced onto the screen. The device is so simple that even a child can use it easily.

The Artist Extras package you received allows the use of the Super Sketch touch tablet with TI Artist. When used this way, the tablet becomes an integral part of the TI Artist program and may be used in place of a Joystick or trackball in all subject treated with the cursor to appear on the screen.

Continued on Page 4

Boston Peart Macintyre, Pike
Management and Extra Support

Except for Super Sketch and Draw 'N Plot, which have supporting disks that contain screen dumps, the drawing packages listed here all include built-in printer routines. The printer and the software package you use must be compatible. Most of the programs listed are compatible with the TI Impact Printer which we have on hand, so any printer that uses the same features and codes as an Epson is also compatible. Print 'N Print even has a choice of three cartridges depending on which printer you have. Cartridge A works with the Axiom GP-100 and GP-700 printers. The GP-550 will give color printouts. Cartridge B is set up to work with the Okidata 92-192 and Okidata printers, and C is for the Epson compatibles, which include Star and Gemi. The Extended Graphics Package which supports Draw2 'N Print contains the routines from all three cartridges. Other printers that can be used with a particular drawing program are listed on the chart.

Screen dumps vary widely in several important respects, including size, density, and placement on the page. All details given here were gotten from screen dumps using the TI Impact printer. They should more or less apply to all screen dumps but there could be differences. A small size screen dump occurs when the screen image is copied exactly as shown, pixel for pixel. A larger dump has more printer dots per pixel - usually either 4 or 16 dots for each pixel, which can give a blockier effect from up close but looks great when the viewing distance is further away.

The size of the printout is also affected by density. On the TI Impact printer there are normally 60 dot printed horizontally per inch. This would make 480 dot per each 8 inch row. Double density prints 120 dots horizontally per inch, and some printers have an even higher dot resolution than that. Since the graphic image has the same number of pixels no matter what density is used, it will be only half as wide when printed double density as when printed in normal density mode. Most of the packages listed here handle this factor for you by adjusting the line spacing when double density is used. Because of the difference in printers, and because screen graphics don't match up exactly pixel for dot with printer graphics you may still find some distortion in your printouts. In the chart, Graph, and paint packages produce a reasonable hard copy of our screen graphics.

Jay Paint gives you a choice of two dump sizes and either size can be single or double density. The small dump is captured on the page, and because Jay Paint uses 922 more area for graphics than other packages, it pretty well extends from one side of the page to the other (6 1/2 inches wide that 3 1/2 inches high). Three of these dumps will nicely color on a page, which, using three screens consecutively, will produce a very good flyer. The large dump produces a horizontal picture 7" X 9" in size.

Bitmac also gives you a choice of large or small dump. The small dump places exactly one dot a the paper for each dot in the screen to give a single density printout 4 1/4 inches wide X 2 5/8 inches big. You have a choice of centering the graphics, or placing them over to the right or left margin. The large dump is centered and in double density. On the TI Impact printer it is distorted quite badly. However, as it is the only program that makes smaller pictures, but a 3x5 inches wide.

TI Artist gives you the most control over the final output for your hard copy. You have a choice of up to eleven magnifications and four densities depending on what your printer is capable of doing. You can also control line spacing when the printing is being set up. Using the TI Impact printer you can have a double density printout as small as 1 3/8 X 2 1/8 using a magnification of 1 and a line spacing of 4, or a printout which will fill an 11" X 15" large size paper with a magnification of 3, a line spacing of 8, and single density. And all this from the same screen image! Printing can also be reduced from the maximum.

All TI Artist printouts are centered whether that the size. A single density printout that has been magnified twice exactly fills one-half of a standard paper. Two consecutive printings make a very nice flyer.

Graphx gives you a choice of two sizes, single or double density. The smaller (4 1/4 X 2 5/8) is printed at the left margin. The larger is half of a standard page - again, two screens make a nice flyer. Draw 'N Plot has one size 4 1/4 X 2 5/8, single density. Paint 'N Print also has one large size single density printout. Paint 'N Print gives a choice of which part of the drawing will be printed - from a very small section up to the whole screen. The drawing will be printed horizontally and in the upper left corner of the paper.

Sketch Mate, the Super Sketch companion disk, and the Master Painter program, both by Beerkoff International, have virtually identical printouts. Each

is 7 3/4 inches wide and 4 3/8 inches high, single density. Each uses a technique whereby colors are assigned a texture (light, medium or dark) to simulate color. This gives pictures a very nice printed appearance. Each color is assigned a default setting which can be changed by the user if desired. The Paint 2 Print program also uses the technique of assigning a different print character for each color. The Draw & Bit conversion disk also allows two printout sizes; single or double size, and each can be normal or double density.

The Morton Graphics Package doesn't actually contain a screen dump. Rather, it allows you to print out data that is needed to rebuild your graphics in your own program, either as Sprites or as Call Characters. This graphic data may then be saved in merge format on a disk.

File Management

Disk Catalog - It's handy to have a catalog available if you need to find out just what you did name a certain file, or even if it's on that disk. Only two programs perform this service - TI Artist and Joy Paint. Joy Paint also provides for deleting files.

Conversion Features and Compatibility- If you are interesting in an pre-designed graphics other instead of or in addition to creating your own, file compatibility among the various programs becomes important because you will need a ready supply of artwork and clipart. The more graphic here in TI Artist. The only to have ready-made artwork available for TI Artist than for the other paint programs, but TI Artist allows picture files from Draw 'N Plot, Graphx and Draw-Bit to be loaded in and permanently converted to the TI Artist format. Or, TI Artist files can be converted with TI Artist and loaded from any one of these programs. Botanicon, which are a very popular form for clipart, can be converted by first saving in a picture, then converting to an sentence. CSHD programs, which are another popular form of clipart, can be converted using any of several available programs including the Artist Library companion disk. CSHD fonts can also be converted to TI Artist fonts using the same disk.

Joy Paint' Pal allows the conversion of Graphx, TI Artist, and Draw 'N Plot picture files to the Joy Paint format and vice-versa. Joy Paint will also load the first of the two output files for Koala Pain. It will not, however, load Bitmap files, even though Bitmap has the same Interval/Fixed/128 format that Joy Paint does. This leaves Bitmap as the only major paint program to lack compatibility with the others.

Graphx does not have a file conversion feature, but it will load TI Artist files that end with _P. If you transfer the picture file this way you do lose the color. If the color is important the file must be converted to Graphx format within the TI Artist program first, then loaded into Graphx. Graphx will also load Joy Paint files that have been through the conversion program on Joy Paint - Pa.

If you are primarily interested in screen graphics then the portability is important. This is the ability to move picture files into another environment without a great deal of programming; for example being able to move a picture you have drawn in TI artist into your Basic program. This ability is built in to TI Artist's textures, slides and font files, which has caused a great many support programs to be written, both commercial and as shareware.

Draw 'N Plot and the Morton Graphics Package can easily be used by the average Extended Basic programmer. In the same way, Draw & Bit and Graphx adapt easily for assembly language programmers. Portability for the rest of the program is limited.

Additional Support

As many named the manufacturers themselves are doing a good job of supporting their paint programs. Great Lakes Software puts out clipart disks for Joy Paint, and sell a Joy Paint's Pal, which has routines to allow file conversion, creation of new patterns, and a reduction feature. Great Lakes also supports a user-group name of Joypaint clipart. Their Extended Business Graphs II, while a stand alone package, has file compatibility with Joy Print.

Hidden Artist Extras, Inc. has released Display Master for the TI Artist which lets you add captions to your drawings and show them in my sequence. Quality SW Software has some disks of very good artwork out for Draw 'N Plot. A volume of artwork was also released by Bitmap.

Other software producers have also done their share. Asgard Software has released several Graphx Conversion sets that contain clipart, full pictures, fonts and printer upgrades for the Graphx environment. They are a veritable gold mine of art and ideas for your own creations. Clipart has also released a disk for TI Artist that contains some of the user-artwork imported to the Artist environment, but you can still use the Graphx Conversion with TI Artist or JoyPaint if you don't mind making the conversions. Asgard has also released Graphx Pictures which contains more of their outstanding artwork - 24 pictures - and a Slide Show program with which to show them.

Price Software has released some excellent artwork for use with TI Artist. Each 2 disk package includes pictures, clipart, fonts and mixes.

Tenaments handles the Artist Companions authored by Dave Rose as well as the whole CSHD series. One of the best and most prolific sources of instances and fonts for TI Artist actually started out as clipart for another program - Character Sets and Graphic Design by Dave Rose. But that's a whole new story so it'll be saved for Part three.

Otherwise, the chart has been covered and you should now have a much better understanding not only of what can be expected of paint programs in general but the strengths and limitations of any particular package.

TI 99/4A GRAPHIC PACKAGES - COMPARISON CHART

FUNCTION	LIGHTPAINT: JoyPaint Pal	BITMAC	TIARTIST: Artist Extras	GRAPHX	DRAW 'N PLOT	PAINT'N PRINT + disk	SUPER SKETCH Stanto	LASER PRINTER	DRAW & BIT Print-Bit	MORTON GRAPHIC PACK
Program Fonts	E,T	E,T	T,E,H	E,T	4,T,E	E	E,T	E	E,U	U
Requirements	Any	32K & MM	Any	32K EA MM	32K	Stnd&++	Stnd&++	2 EX MM	32	32
Ease of Use	8	7	6	5	4	4	6	2	3	1
Method of Operation	Icons, Menus	Some Prompts	Menus Icons	Menus Keys	Menu Keys	Keys	Mouse	Some Fnc Keys	Menus Fnc Keys	Menu/ Keys
Joysti Control	Required	Required	Optional	Required	Optional	Required	No	Opt	Optional	No
Color Speed Cut	No	5 speeds	2 speeds	5 speeds	2 speeds	No	No	No	No	
Brush Styles	7	1	4	1	1	32	3	4	1-pixel	3
Automatic Shape Functions	Lines, Rectangle Ellipses	Lines, Circles Rectangle	Lines, Box Circles Rectangle	Lines, Ellipses	Lines	Lines, Box Circles Squares	Lines, Box Rectangle	Lines, Rays	Lines, Rays, Arcs	Lines, Parallel Ellipses
Fill Shade, Depth	Solid Fill 256 Patns Gray/Brush	Normal Color Lite	Instant Fill Col/Pat	Solid Color	Solid Color	Solid Fill Yes+	Solid Fill Col/Pat	No No	Normal No	No No
Duplications	No	No	Yes	No	No	Yes	No	No	No	No
Move, Copy	Yes	Yes	Yes	Yes	No	Yes	No	No	No	No
Flip, Rev/vert	Yes	Yes(1)	Yes	No	No	Yes+	No	No	No	No
Rotate	90 deg.	90 deg.	Slides	No	No	Yes++	No	No	No	No
Layers	Simplified	Yes	Yes	No	No	Text	No	No	No	No
Magnify, Reduce	Yes	Yes	Magnify++	No	No	No	No	Yes	No	No
Text handling Special Fonts	Yes Yes	Yes No	Yes Yes	Yes Yes	Yes No	Yes Yes	No No	No No	No	Yes No
"Save" Mode	Optional	No	Yes	Yes	No	Magnify	No	No	No	No
Graphical Use ("Clipboard")	Cut and Paste	Many (8 Layer)	Instances Slides	Clipbrd	No	Yes	No	Symbols, Mixes	Palette	No
Use of Color	All	Full Use	Full Use	Full Use	Limited	256 optns	Full Use	Full Use	Full Use	No
Slide Show	No	Yes	Yes++	Yes++	Yes	No	No	No	Yes	No
Undo	Yes	No	No	No	No	No	No	No	No	No
Spec. Features	Larger Dot Spec: Pal Edit+	Prompt: Cartprt (Fn.Scrl	Instances Animation	Animate Grid/Rul	TI Addl Commands for XB	Retrofit Existing Colors	Touch Tablet		Redraw Connect Dots	Cassette-recorder text
Printer	Epson Action	Epson, T 850/5	Most Printers	Epson	Epson	Most Printers	Epson	Epson	Epson	Most Printers
Screen Dumps	2 sizes 3 density	Full Med. TD	Min Ch Size,Den	2 Sizes 2 Density	1 Med	1 Large (Narrow)	1 Large (Narrow)	1 Large (Narrow)	2 sizes 2 dens	No
Disk Catalog	Yes	No	Yes	No	No	No	No	No	No	No
File Conver Ftr	Most	No	Yes	Most+	Most+	Most+	Most+	No	Most+	--
F/Portability	Not at Present	Limited	Easily	Prog Skl in Assem	Prog Skl in XB	No	No	No	Prog Skl in Assem	Easily to TI
Addl Support	Some	No	Lots	Lots	Some	No	No	No	No	No

Starred features are found on the companion disk listed under the main package

++ See chart notes

PRBASE Hints

The following essential tips on PRBase are presented the courtesy of Jim Sleeth of the Southern California Computer Group in their Computer Voice newsletter of January 1988.

Jim mentions the Fairware PRBASE utility program by John Johnson to copy the header. (John Johnson, 2981A Vermont Ave. Homestead AFB. FL 33039)

Another hint involves the label design in "Database creation", Option 7 Will not permit exit of this mode unless at least one label has been designed. So don't get into this unless you are prepared to design a label.

The third, and perhaps most important, is that PRBASE can (I repeat CAN) be used to output to disk in DV80 format. This is how it was done on a two drive system:

When in the Database management program select the letter O for system options. When asked for data disk answer 2 for Output file: DSK1.NEWFILE; then replace the PRBASE system disk with a TI disk formatted in the normal (not PRBASE) manner. Press enter. Then press L to list the file as per your label setup.

No carriage return or line feed symbols are inserted. However, some unwanted characters may appear, so edit the file using TI Writer before printing.

PRBASE can also be used to build a new file(s) one at a time or in groups as indexed. This is done using another PRBASE utility found on the same disk as PRBASE. "You could sort and do the same if your data base has been designed to do so. Type numbers with leading 0's like 001 or 010 for 1 and 10 (respectively). This will give you clean sorts on the numbered fields."

Robert C. Holland of 6198 Caninito Beaze, San Diego CA 92112 has written a IBM and a TI program that can be run on any TI disk controller. This program will transfer any type of file to the IBM or TI through the RS232 port just by connecting the two computers by cable. You might want to send him a BASE to get the details or check with your user group because this will be FAIRWARE! Now you can link PRBASE to TI Writer to IBM to Lotus 123 (with the Sig. command). Once you are in Lotus 123 you can find many DataBases that will input Lotus files. Keep the program on a floppy. One side for the TI and the other for IBM.

1 CLEAN UP THOSE PROGRAMS 3

Back in the "Good ol days" when I first joined this Group, I remember a program that is still in our library called "CLOSE ENCOUNTERS of the SIMON KIND". This program is of unknown origin (to me) but I think that it came from an early issue of 99'er. Encounters is written in BASIC and is a very large program (44 sectors on disk), too large in fact, to be run from BASIC with the disk drive turned on. I can remember some efforts get around this problem by removing the REM's etc., but in those early days we did not have knowledge of little tricks such as CALL FILES etc. so this project was not a success.

Encounters is a fun program that my children and I enjoy playing once in a while but loading it from tape got to be too much of a chore and we gave up on it. As time went on, three products became available that have let me modify Encounters so it can be loaded from disk and at the same time have slightly speeded up it's execution. Not only was Encounters written in BASIC, the author chose to use character sets 15 and 16 for some of his graphic displays. This made the program unable to run out of Extended BASIC, and as you will remember, BASIC can't make use of the 32K memory expansion. If someone were to go through the program and change the code so that sets 15 and 16 were not used, the problem would be solved. I tried this but the task looked to be quite involved because the program is very very large and confusing. Finally Jim Peterson of Tigercub Software offered a solution.

On one of my copies of the Genial TRAVelER Diskazine I came across a program in merge format by Jim called BXB. If memory serves me correctly, I have seen this program listed in other newsletters and I think it is available from Tigercub on one of the " Nuts and Bolts" disks. BXB is a short but useful subprogram that allows Extended BASIC to use character sets 15 and 16. To use it, first load your program into Extended BASIC and then merge BXB with the program in memory. Next resave your original program back to disk and you are done. In the case of Encounters, the access to the 32K memory that Extended BASIC offers allowed room for the program to execute without tricking the system with CALL FILES. Moving the program into the Extended BASIC enviroment offered two other opportunities to improve the code as you will see below.

As mentioned above, Encounters is a very lengthy program and as usual with programs for the 99/4A, long programs take forever to start executing because of the prescan that is part of the operating system. With Encounters moved into the Extended BASIC enviroment, we now have the ability to use the "Prescan ON" and "Prescan OFF" features to reduce the pause between typing RUN and when the program starts running. Once again, the long and complex code of this program made this a chore that I did not want to tackle. Peter Hoddie offers a tool to do this complex task for us. His program "PRE SCAN IT" searches through the program that you wish to modify and rewrites it making use of the prescan feature. After I had modified Encounters, the delay in the start of execution was reduced from roughly 16 seconds to about 10 seconds! This was well worth the effort in my book.

My final improvement to Encounters was to shorten the program's total length by converting the code from single statement lines to multi statement lines. This is another task that could have been done manually but it would take weeks to do. I used a product called XBasher by Mike Dodd to do this task for me. XBasher does just as described above, that is, shorten programs by converting them to multi statement lines plus offering other options to reduce program size. Shorter program not only take up less space on your storage media, they also load faster and multi statement lines often times execute faster. In the case of Encounters, I took a 44 sector program and lengthened it by adding BXB, lengthened it again by using PRESCAN IT, and it ended up with a 41 sector program after it was modified with XBasher.

Finally I want to talk about one more utility that is available. I have not used this one but there is a program on one of the GENIAL TRAVelER disks called UNBASHER that takes XB programs written with multi statement lines and rewrites them using single statement lines. If you ever tried to sort through a piece of code written in multi statement format you will be able to appreciate why anyone would want to take this giant step backwards.

It used to be that only the skilled programmer could generate efficient and compact XB code. Now thanks to those same skilled programmers, the rest of us can use their products to convert our less that perfect code into something that appears to have been written by an expert.

* FUNNELWEB ver. 4.0 *

Thanks to Tom Carson (Librarian and VP of the Ft. Wayne Group), we now have the latest update of the popular Funnelweb Farm Utility Loader. Before I go further with this review, I need to comment on the name Funnelweb. In the file 'Crocodile Dundee', Mr. Dundee mentions the funnelweb spider from his native Australia. I would assume that this same spider inspired the name for this software. Now back to business.

This latest update brings Funnelweb to level 4.0 and is dated 10/20/87 (an earlier version 4.0 had some bugs in it when used with Ram Disks). It is essentially the same product that we have been using in the past but it has been cleaned up and streamlined in many areas. The biggest change involves the procedure used to customize the package to the user's needs. In earlier versions the user had to edit the Extended BASIC Load Program to setup the color options and to fill in the menu selections etc. This is now done by selecting CONFIGURE from the central menu screen. CONFIGURE runs a program that prompts you for all the options you desire to include in your setup and then writes your final setup to the disk.

The EDITOR for TI-Writer has several enhancements added that make a good product even better. The biggest change comes to the Show Directory feature. SD still lets you catalog any disk without leaving the Editor, but new features have been added. Now you can View files, Delete files, Check program type files, and Print the directory (to printer).

Perhaps the most useful feature added to the SD command is the View file option. This feature allows you to select any DV-80 file from the directory and bring it up on the screen so you can review it's content. This is done without exiting the Editor or without overwriting the file currently in the text buffer. My only disappointment with this feature is the fact that the file that you are viewing is wrapped into a 40 column screen and the line numbers are not displayed. The 40 column screen makes it easy to read but the lack of line numbers does not give you the information needed to merge part of a file into the text currently in the text buffer.

The Check program type files is not a new feature but it is not widely used. Program type files on the TI can be two types. They can be BASIC/X-BASIC or they can be E/A Program files. When you use SD to catalog a disk, pressing the = key will spin the disk and check all the Program type files to see what environment they run from. This information is then added to the screen display next to each program file. This feature is also available when cataloging a disk while not in the Editor (FCTN-7).

Another feature shared by the SD and FCTN-7 disk cataloging routines is the ability to detect fractured files. As your disk starts getting full, the 99/4A will sometimes store a single file in two or more blocks on the disk. This is useful in that it uses all the available disk space but it causes extra disk head activity when loading one of these files. When a disk is cataloged with Funnelweb, the filename will have an (8) next to it if that file is fractured.

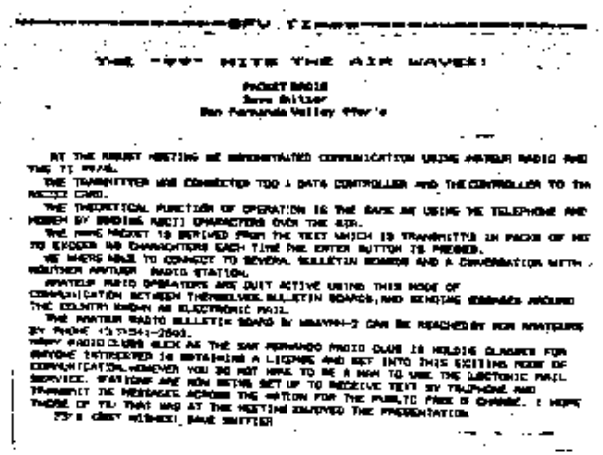
The first thing that you notice when you enter the Editor is that a tab line was been added to the EoF (End of File) line. This line will always be the last line of your document. If you scroll up through your work this line will scroll off the bottom of the screen but any typing at the end of the document will have this tab line below the cursor. This is a handy feature when you are working with screens wider than 40 columns. This tab line will not print as part of your document.

Another handy addition to the Editor is is a feature that sounds a chirp when your typing reaches 5 spaces from your right margin. This is similar to the bell on a typewriter. It is a great addition to anyone who is typing with the word wrap turned off. The 5 space default can be changed but will require a sector editor to do so (instructions are included).

Finally, other changes added to the Editor include a feature that lets you change lower case to upper case or vise versa. To do this place the cursor over the character to be changed and either press Ctrl/; or Ctrl/. This is a feature that I thought was no big deal, but while typing this article I have used it several times.

Other sections of version 4.0 have been updated as well. The sector editor that comes with the package now contains an on screen listing of the keypresses used within the program, DM-1400 has been upated to version 3.5, and the object file loader section now has a couple of different options.

That just about covers all the high points of this new version of Funnelweb. I have not used this package except to write this article so I am sure that I have missed some of the features. I did find a couple of problems, however. I was not able to load a mailing list program that I was able to trick version 3.4 into loading, and I was not able to load the package from The CorComp object file loader. I would suggest that you get a copy of this package from our library and give it a try, and please do not forget to send something to the authors.



YOU "99" WITH THE AIR WAVES!

POCKET RADIO
Dave Ritter
San Fernando Valley 99er's

AT THE AUGUST MEETING WE DEMONSTRATED COMMUNICATION USING AMATEUR RADIO AND THE TI 99/4A.

THE TRANSMITTER WAS CONNECTED TO A DATA CONTROLLER AND THE CONTROLLER TO THE RS232 CARD.

THE THEORITICAL FUNCTION OF OPERATION IS THE SAME AS USING THE TELEPHONE AND MODEM BY SENDING ASCII CHARACTERS OVER THE AIR.

THE RADIO MODEM IS DERIVED FROM THE TEXT WHICH IS TRANSMITTED IN PACKS OF NOT TO EXCEED 80 CHARACTERS EACH TIME THE ENTER BUTTON IS PRESSED.

WE WERE ABLE TO CONNECT TO SEVERAL BULLETIN BOARDS AND A CONVERSATION WITH A NEWINGTON AMATEUR RADIO STATION.

AMATEUR RADIO OPERATIONS ARE QUITE ACTIVE USING THIS MODE OF COMMUNICATION BETWEEN THEMSELVES, BULLETIN BOARDS, AND SENDING MESSAGES AROUND THE COUNTRY KNOWN AS ELECTRONIC MAIL.

THE AMATEUR RADIO BULLETIN BOARD W WA6YKH-2 CAN BE REACHED BY NON AMATEURS BY PHONE (213)341-2503.

THE 2 METER RADIO CLUB AT THE SAN FERNANDO RADIO CLUB IS HOLDING CLASSES FOR ANYONE INTERESTED IN OBTAINING A LICENSE AND GET INTO THIS EXCITING MODE OF COMMUNICATION. HOWEVER YOU DO NOT HAVE TO BE A HAM TO USE THE ELECTRONIC MAIL SERVICE. STATIONS ARE NOW BEING SET UP TO RECEIVE TEXT BY TELEPHONE AND TRANSMIT THE MESSAGES ACROSS THE NATION FOR THE PUBLIC FREE OF CHARGE. I HOPE THOSE OF YOU THAT WAS AT THE MEETING ENJOYED THE PRESENTATION.

73'S (BEST WISHES), DAVE RITTER

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BND 99 er's <<<